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Stephen Zombil

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Identify Adolescent Opioid Users and Provide Brief Multi-Contact Counseling: A Pilot  
Quality Improvement Project Guided by Prochaska's Behavioral Change Model

Stephen T. Zombil

University of Massachusetts

College of Nursing

Capstone Chair: Jean DeMartinis, PhD, FNP-C

Approved:



Capstone Committee Member: Kimberly Dion, PhD, RN, CNE

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## Abstract

**Background and Review of Literature:** The epidemic of opioid use/dependence is consuming many lives and destroying many families across the length and breadth of the United States and the world. Public health authorities, States, and local governments as well as the public have expressed, with growing alarm, an unprecedented rise in morbidity and mortality related to drug addiction and substance abuse. Despite the prevention efforts, drug addiction and substance abuse continue to be a major issue that needs multifaceted public health approaches to solve it. **Purpose:** The purpose of this pilot quality improvement project was to encourage behavioral change in adolescents identified as opioid users, by using a brief multi-contact counselling intervention integrating motivational interview (MI) techniques guided by Prochaska's six stages of Behavioral Change Model. **Methods:** A pilot Quality Improvement project (QI) that incorporated a QI process plan with an educational evaluation design that used brief multi-contact counselling integrating MI techniques for adolescent opioid users. A pre and post intervention surveys were administered at the initial and last stages of the project implementation respectively. **Results:** All participants had stopped using opioids by the end of the six weeks intervention period and had committed to change their opioid use behavior. **Conclusion:** Brief multi-contact counselling intervention integrating MI techniques guided by Prochaska's six stages of Behavioral Change Model is effective in encouraging behavioral change among adolescents abusing opioids.

**Keywords:** Opioid use among Adolescents; Brief Counseling; Motivational Interviewing; and Trans-Theoretical Model of Behavior Change.

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### **Introduction**

According to Sheridan et al. (2016), the national prescriptions of opioid increased from 78 million to 108 million between the years 2005 and through 2016. Opioid use has healthy benefits if taken in small quantities and short period of time as per the prescription of the physician to relieve pain (Garland, Froeliger, Zeidan, Partin, & Howard, 2013). However, opioids also cause euphoria, which may lead the consumers to misuse it, resulting in addiction. The addiction to opioid may cause overdose and deaths among the users (Garland et al., 2013). The increased prescriptions of opioid are associated with increased abuse of the drug and its negative impacts. According to Schmidt et al. (2015), the use of opioid analgesics has increased significantly since the year 2005 and resulting in considerable public health problems. For instance, as at the year 2014, more people in the United States (US) died as a result of drug overdoses than gunshots wounds, homicide, or motor vehicle crashes. Out of the deaths, opioid deaths accounted for three in five cases of overdoses (Roberson, 2017).

Drug addiction is the continued use of drugs, despite being aware of the negative impacts (Jones, & Comer, 2015). The first time of taking a drug could be voluntary in most people, however, repeated use of the drug changes the functioning of the brain which interferes with a person's ability to resist taking the drug. As a result, a person forms an adhesive relationship with the drug, which is referred to as drug abuse and is categorized as a disease (Jones & Comer, 2015; Piazza, & Deroche-Gamonet, 2013).

The adolescent population is at higher risk of being impacted with the opioid epidemic. According to Hammond, Mayes, and Potenza, (2014), the adolescence period involves

psychological, biologic, and behavioral changes. Also, during adolescence, the developmental changes occur in the neural circuitry of motivation, stress, cognitive control, and reward processing which contributes to their high susceptibility to increased levels of engagement in drug use and addictive behaviors (Hammond et al., 2014). Therefore, there is a need for developing effective strategies for addressing opioid abuse among the youths because they constitute the largest proportion of the population and are important in ensuring continued existence of human species (Das, Salam, Arshad, Finkelstein, & Bhutta, 2016).

### **Background**

Adolescence is characterized by psychological, biological, and behavioral changes which include puberty and physical maturation, individuation and identity formation, increased responsibility and independence, increased exploratory behavior, and increased peer interactions and salience (Hammond et al., 2014). Adolescence is the healthiest period in a lifetime with regard to chronic diseases, but it is also associated with increased mortality and morbidity compared to adulthood and childhood. The main causes of death among adolescents are homicides, suicides, and crashes, and are related to impulsive behaviors and cognitive control which are exacerbated by drug use and dependence (Das et al., 2016; Hammond et al., 2014).

Studies indicate that opioids are among the most abused drugs in the youthful population of the US (Das et al., 2016; Garland et al., 2013; Hammond et al., 2014; Roberson, 2017; Sheridan et al., 2016). The national estimates of the year 2010 indicated that approximately 6.2% of the adolescents' population aged between 12 years and 17 years and 9.5% of 12th grade pupils were engaged in nonmedical use of controlled pain reliever medications (Young, McCabe, Cranford, Ross-Durow, & Boyd, 2012).

There are several interventions for opioid use and dependency among adolescents. The most effective interventions are designed to address salient risk as well as protective factors which are family, community, and/or individual levels and are founded on relevant psychosocial theories regarding the origin of substance use and abuse. Das et al. (2016) conducted a systematic review of interventions for drug and substance abuse among adolescents and outlined several effective strategies which include school-based interventions, digital platforms, policy level interventions, incentives, and multicomponent interventions. According to Blume (2016), culturally relevant prevention programs such as community/family based rather than individual focused interventions are effective in addressing drug and substance abuse among adolescents. Motivational Interviewing (MI) is a psychological intervention that is also used for assisting drugs and substance users (Catley et al., 2016).

### **Problem Statement**

Adolescents have been identified by most studies as the population that is more susceptible to the problem of drug abuse and addiction. Adolescents who are engaged in drugs are at higher risk of acquiring infectious diseases such as Human Immune Viruses (HIV) and Hepatitis C Viruses (HCV); mortality; and morbidity. The problem of drug abuse and addiction is aggravated by not only knowledge deficits and other factors on the part of drug users about risky behaviors, but also by providers failing to identify and to offer brief interventions to meet the individual needs of drug users.

### **Organizational “Gap” Analysis of Project Site**

The Island Counseling Center (ICC) is an outpatient psychiatric facility located in Worcester, Massachusetts. It has staff members from diversified cultures who serve patients from multicultural backgrounds. The ages of patients seeking behavioral health care services at

the ICC range from eight years to hundred years old. In recent years, there has been an increase in the number of patients with psychiatric, drug abuse, and addiction problems, especially among the adolescent population seeking care at the facility. The problem is that most of the patients suffering from co-occurring disorders of substance use disorders (SUD) are appropriately identified by provider, but the providers provide longer and weekly counseling sessions and the relapse rate among users especially the adolescent population continue to increase. Therefore, the facility's staff members were willing to use an evidence-based practice to promote positive health outcomes of the population that has an elevated risk of the negative consequences of opioid abuse and dependence.

### **Review of the Literature**

Evidence used in developing the literature review section for the capstone project was gathered from PubMed Central (PMC) and EBSCOhost databases. The literature review section contains the following main subtopics: Opioid use among adolescents; brief multi-contact counseling; and Trans-Theoretical Model (TTM) of behavior change. The inclusion criteria for articles in the project were that the articles must have had evidence ranging from levels I to IV, and articles published after the year 2013. The exclusion criteria included the articles with evidence of level V to VIII. Level I evidence articles involve Randomized Controlled Trials (RCTs), II involve cohort and ecological studies, III are case control studies, and IV are case series. Studies with level V evidence are systematic reviews and meta-synthesis, VI are single descriptive studies, and VII are expert opinion (Kay et al., 2016). Settings on the databases were adjusted to produce articles published after the year 2013. The following is the number of articles that were revealed in PMC and EBSCOhost databases respectively based on search terms. Using search terms *Opioid use among Adolescents*, 5,590 and 2,042 articles were revealed in PMC and

EBSCOhost respectively. Using search terms *Brief Counseling*, 14,480 and 26,294 articles were revealed in PMC and EBSCOhost respectively. Search terms *Motivational Interviewing* revealed 5,895 and 16,640 articles in PMC and EBSCOhost respectively. Search terms *Trans-Theoretical Model of Behavior Change* revealed 1,663 and 1,233 articles in PMC and EBSCOhost respectively. After selecting articles based on inclusion criteria, project leader chose articles that had significant contribution on each subtopic. As a result, 12 articles have been used in developing the main subtopics in the literature review section.

### **Opioid use among Adolescents**

Opioids are among the most commonly abused drugs by the US adolescents (Groenewald, Rabbitts, Gebert, & Palermo, 2016). The misuse of opioids by children and adolescents in the US has significant public health consequences and is an economic burden on the society. Statistics indicate that 8.7% of 12th grade students abused opioid in the year 2015. Additionally, the annual rate in the year 2008 of unintentional deaths which are related to opioids was 3.7 in every 100,000 adolescents of ages between 15 years and 18 years (Groenewald et al., 2016). According to Fotiou, Kanavou, Richardson, Ploumpidis, and Kokkevi (2014), the misuse of opioids can be intentional or unintentional. Adolescents may aim at experiencing the mood-altering virtues of its therapeutic virtues. However, opioids use among adolescents is determined by factors such as age, gender, personality, physical and psychological health, and family background, among others. According to Veliz, Boyd, and McCabe (2013), school related factors such as sports contribute to abuse of opioids among the US adolescents. The students participate in sports that expose them to injuries, which require prescription of opioids for relieving pain. The drug is then abused because of its increased access to the students.

**Brief Multi-Contact Counseling**

Counseling sessions can last up to 90 minutes, but effective therapies for adolescents should take shorter periods (Rakauskiene & Dumciene, 2013). The concentration of adolescents reduces with increase in duration of a lesson or counseling session. As a result, brief multi-contact counseling is more appropriate while offering psychotherapy for the adolescents who are addicted to opioids. Several studies have been conducted, which show the efficacy of brief counseling (Hair, Shortall, & Oldford, 2013; Rakauskiene & Dumciene, 2013; Virtanen, Zeebari, Rohyo, & Galanti, 2015). According to Hair et al. (2013), brief contact reduced long waits in a mental clinic and it enhanced positive health outcome in a pilot project. Virtanen et al. (2015), also found that very brief and structured counseling achieved positive behavioral modification among users of tobacco in a dentistry. Rakauskiene and Dumciene (2013) stated that brief counseling is suitable for adolescents at a school in improving their self-efficacy because it is brief, flexible, and well structured.

Brief counseling combined with some MI techniques can achieve more significant results in reducing drug addiction among adolescents (Christie and Channon, 2014). Motivational interviewing is a collaborative conversation that is intended to stimulate actions that change a behavior (Catley et al., 2016). According to Christie and Channon (2014), having good intentions about engaging in healthy behaviors that change lives in a positive direction and making significant lasting changes may not always be translated into actions unless a directive person centered approach that is designed to activate motivation and explore ambivalence is used. Motivational Interviewing has been found effective in changing behaviors in several studies (Catley et al., 2016; Christie, & Channon, 2014; Benzo et al., 2013).

### **Trans-Theoretical Model of Behavior Change**

Prochaska and DiClemente's Trans-Theoretical Model (TTM) of change shown in figure A is widely recognized in health research and is also used in travel behavior studies (Friman, Huck, & Olsson, 2017). According to the TTM, behavior change is a sequence of stages through which an individual progress towards a desired behavior. The TTM involves two main constructs which include: the processes of change and stages of change. The TTM is widely used because it enables tailoring of interventions to the people who are undergoing various stages of change (Friman et al., 2017). In a project by Horwath et al. (2013), the TTM behavioral processes predicted successful transition from the initial stage of pre-contemplation to the stage of action. Pirzadeh, Mostafavi, Ghofranipour, and Feizi (2015) stated that interventions that are based on the TTM are effective in achieving behavioral change in individuals.

### **Synthesis of Results**

Statistics and studies show opioid abuse among US adolescents is increasing (Fotiou et al., 2014; Groenewald et al., 2016; Veliz et al., 2013). The negative impacts resulting from opioid dependency among the adolescents include health deterioration, increased cases of unintentional deaths, and economic burden on the society. Adolescents of ages below 15 years are associated with opioid abuse and its misuse increases with age group, thus the need for developing interventions (Groenewald et al., 2016). Though several interventions for drug abuse exist, a strategy that involves a combination of brief multi-contact counseling and MI is promising in addressing opioid misuse among the adolescents. Brief multi-contact counseling involves a conversation between the client and the patient, which lasts a few minutes. The strategy capitalizes on short sessions because clients are perceived to be more attentive within the first few minutes (Rakauskiene & Dumciene, 2013). Motivational Interviewing entails the



psychotherapist developing a conversation with a client that stimulates actions for changing a behavior (Catley et al., 2016). The efficacy of the two interventions has been demonstrated in different studies (Catley et al., 2016; Christie, & Channon, 2014; Benzo et al., 2013; Hair et al., 2013; Rakauskiene & Dumciene, 2013; Virtanen et al., 2015). However, change in behavior occurs gradually. The TTM of behavior change describes the stages involved in behavioral change. Interventions for unhealthy behaviors that are developed based on the TTM have shown to be effective (Friman et al., 2017; Horwath et al., 2013; Pirzadeh et al., 2015).

### **Evidence Based Practice: Verification of Chosen Option**

Though other interventions for promoting behavior change among adolescent opioid users exist, the brief multi-contact counseling integrating MI techniques is noted to be more effective (Dumciene, 2013). Motivational Interviewing is goal oriented and client centered style of counseling that enhances change of behavior by helping clients to explore and resolve ambivalence. The problem of opioid use among adolescents could therefore be effectively addressed if they were referred for brief multi-contact counseling sessions that integrate MI techniques.

The purpose of the Quality Improvement project was to implement an effective clinical intervention that is evidence based in helping adolescent opioid users to achieve a behavior change in their opioid use behavior. The intervention was aimed at causing a positive change in behavior among the increasing number of adolescent patients with psychiatric, and drug use problems who seek care at the ICC of Worcester. The current treatment practice involves providers relying on self-reports of patients regarding their substance use behaviors and spending longer counselling sessions with them. As a result, patients are not effectively identified and treated based on individual needs.

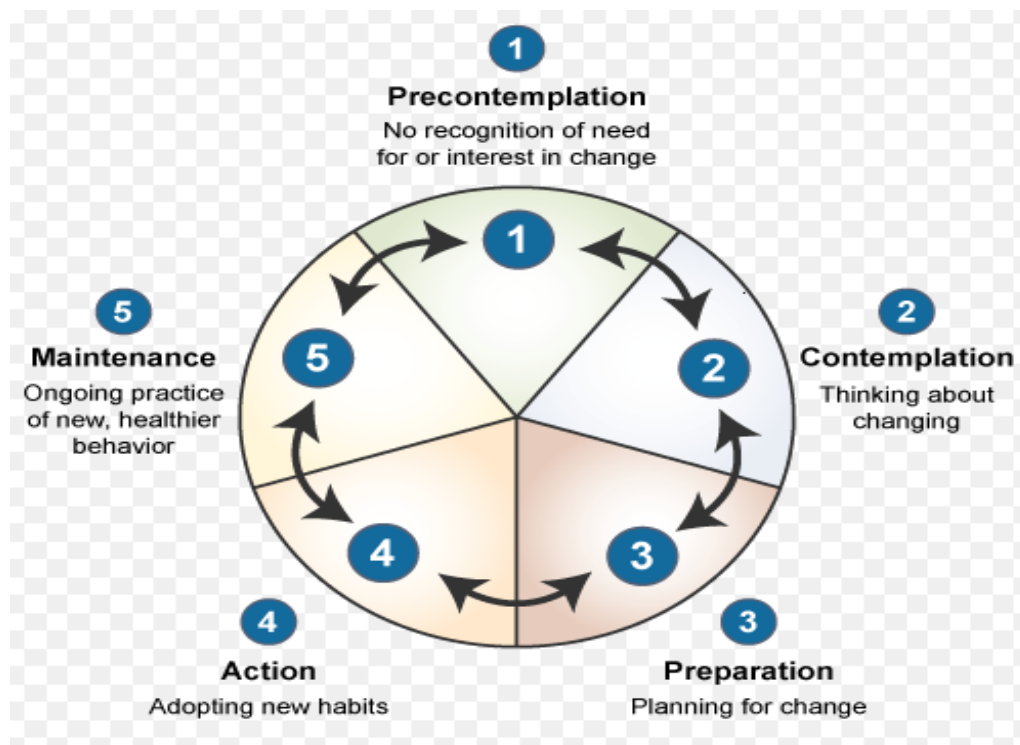
In the proposed intervention, patients suffering from opioid use and related problems will first be identified based on a diagnosis of opioid use disorder as part of their medical records at the ICC. Brief multi-contact counseling integrating evidence-based interventions for facilitating change in behavior have been found to be effective (Catley et al., 2016; Christie, & Channon, 2014; Benzo et al., 2013; Hair et al., 2013; Rakauskiene & Dumciene, 2013; Virtanen et al., 2015). Therefore, using this approach by providers at the ICC could lead to a more positive patient outcome in treating the problem of opioid use among adolescents in the community. The providers will utilize concepts in the TTM in the process of behavioral change among the adolescent opioid users. Studies indicate behavioral change is gradual and effective interventions for the process are founded on the TTM (Friman et al., 2017; Horwath et al., 2013; Pirzadeh et al., 2015). This project which involves an intervention that begins with identifying adolescent opioid users using a diagnostic data; then providing brief multi-contact counseling integrating MI; and measuring behavior change using the TTM of behavior change is evidence based and likely to be effective.

### **Theoretical Framework/Evidence Based Practice Model**

The theoretical framework that formed the foundation for the project is the TTM of behavioral change that was first explained by Prochanska and DiClemente in 1983. The TTM integrates principles and processes of behavior change from different theories of counseling. The theory interprets behavior transformation as an intentional process which unfolds over time involving progress through six stages of change (Friman et al., 2017).

The six stages of change contained in the theory include pre-contemplation, contemplation, preparation, action, maintenance, and relapse (Friman et al., 2017) as shown in figure 1. In pre-contemplation stage, an individual is not considering change and does not intend

to act in a period of six months. In the contemplation stage, an individual is in an ambivalent state and is considering changing the behavior in six months but is not acting. In the preparation stage, an individual must have unsuccessfully taken a step towards change but is intending to try again within a month (Friman et al., 2017). Individuals in the preparation stage need to be encouraged to develop a plan of action and to make attempts to behavioral change. In the action stage, an individual overtly modifies the behavior experience and environment to facilitate change. Measures that mitigate relapse should be taken at this stage. At the maintenance stage, the individual actively continues implementing the change plan. At the relapse stage, an individual reverts to the old behavior (Friman et al., 2017).



*Figure 1: The Trans-Theoretical Model of Behavior Change*

The TTM is aligned to the project because it involves adolescent opioid users changing from the drug use/risky behavior to non-drug use individuals. The adolescents will be assisted to change from the drug use behavior by psychiatrists or Psychiatric Mental Health Nurse

practitioners (PMHNP) based on brief multi contact counseling that will integrate some MI techniques. The change process is expected to follow stages in the theoretical model of behavioral change.

### Goals, Objectives & Expected/Actual Outcomes

The goals, objectives, expected and actual outcomes of the DNP project are outlined in table 1. The overarching goal of the project was to encourage behavioral change in adolescents identified as opioid users, by using a brief multi-contact counselling intervention integrating motivational interview (MI) techniques guided by Prochaska's six stages of Behavioral Change Model. The intervention had objectives designed to effect positive change in behavior among the increasing number of adolescent patients with psychiatric, and drug use problems who seek care at the Island Counseling Center of Worcester.

Table 1:

*Project goals/objectives, expected/actual outcomes*

Goals	Objectives	Expected Outcomes	Actual Outcomes
Increase provider awareness of BMCC & MI techniques in promoting behavior change in opioid users	1. Train on how to use the Prochaska's Pilot Project Intervention Daily Tracking tool Providers to review MI techniques 2. Providers to be knowledgeable about intervention based on participants response to pre-intervention survey questionnaire. 3. Providers to familiarized themselves with pre and post intervention survey questionnaires prior to project implementation	1. 40% of providers will embrace and incorporate BMCC in their practice. 2. Improved provider skills and attitudes	100% providers embraced BMC & willing to incorporate in their practice  <b>Goal Met</b>
Providers to help Participants learn needed skills to reject opioids	1. Participants to be introduced to five triggers by the end of the first week. 2. Participants to learn how to avoid triggers by the end of second week. 3. Participants to become aware about triggers and utilize learned coping strategies by end of 4 weeks. 4. Participants to either progress from or remain in their current stage of change by the end of intervention. 5. Post-intervention survey to be completed on the participants at the end of project.	1. At least 20% of participants will make progress towards changing their opioid use behavior. 2. Participants to have improved quality of life and harm reduction.	<b>Goal Met.</b> 100% attendance rate. All 6 clients made progress towards changing their opioid uses behavior

### **Project Design and Methods**

The DNP project was a pilot Quality Improvement project (QI) that incorporated a QI process plan with an educational evaluation design that used brief multi-contact counseling integrating MI techniques for adolescent opioid users seeking care at the ICC in Worcester, Massachusetts. The purpose was to encourage behavioral change in adolescents identified as opioid users by using a brief multi-contact counselling intervention integrating motivational interview (MI) techniques guided by Prochaska's six stages of Behavioral Change Model shown in figure B. At the end, the DNP student hoped to learn where each participant fell in the six stages of Prochaska's behavioral change model and if brief multi-contact counselling could stimulate guided positive changes in behavior. Brief multi-contact counselling was appropriate in the project because typical adolescent attention span is about 9 minutes to 15 minutes (Rakauskienė & Dumciene, 2013). The project was founded on the TTM of behavioral change, thus it was expected to achieve the final outcomes as in the theory. Motivational Interviewing is client and result oriented; therefore, integrating MI techniques will be effective in ensuring the expected outcomes of the project are achieved (Catley et al., 2016; Christie, & Channon, 2014).

A Pre-intervention survey questionnaire to assess client participants self-report of knowledge on the impact of their opioid abuse was administered at the initial stage of the project implementation. The implementation of the project lasted four months based on the TTM while utilizing the brief multi-contact counseling and MI intervention. After the period of project implementation, a post-intervention survey questionnaire was administered to the participants. The procedure enabled assessment of the effectiveness of the counseling intervention and the appropriateness of TTM in the project.

**Setting and Resources**

The project was conducted at Island Counseling Center (ICC), an outpatient psychiatric facility that opens Daily from 8.00 am till 6.00 pm on Monday to Friday. Island Counseling Center provides psychiatric care to patients of all ages ranging from 8 years to 100 years old. The patient population consists of people from diverse backgrounds and cultures. The services provided include psychotropic management; psychotherapy; suboxen maintenance; and Transcranial Magnetic Stimulation (TMS). The staff members of the facility include seven psychiatrists, four PMHNP, five license social workers, three registered nurses, two receptionists, and five administrative support staff. The resources used in completing the project included man power of the staff members of the facility, the administration, and funds. The Doctor of Nursing Practice (DNP) student led the implementation of the project.

**Description of the group, population or community.** Island Counseling Center is in the City of Worcester, Massachusetts. According to the 2010 U.S. Census, Worcester had a population of 181,045, of which 88,150 (48.7%) were male and 92,895 (51.3%) were female. With regards to age, 77.9% were over 18 years old and 11.7% were over 65 years old; the median age was 33.4 years. The median age for males was 32.1 years and 34.7 years for females (American Fact Finder [AFF], 2017).

**Participants, inclusion and exclusion criteria.** Purposive sampling was used by the facility providers who were on the QI team to select eligible client participants. The size was drawn from the adolescent population seeking care at ICC in Worcester. Purposive sampling was appropriate for this project because a predetermined small sample can be used to represent the rest of a target population (van Hoeven, Janssen, Roes, & Koffijberg, 2015). The client participants consisted of 6 patients (3 males and 3 females between the ages of 11 - 20 years).

The inclusion criteria included patients with a diagnosis of opioid use disorder confirmed by the QI team providers screening for these participants through the medical records at the ICC. The qualified patient participants had to be using at least either one prescriptive or a non-prescriptive opioid. In addition, the patient participants had to be willing to provide responses to the pre-intervention questionnaire and a post-intervention survey after signing an informed consent form. Ethnicity was not in the inclusion or exclusion criteria.

**Organizational analysis of project site.** The current practice for treating patients with SUD involves providers relying on self-reports of patients' addiction behaviors and engaging them in long weekly counseling sessions. The relapse rate especially among adolescent opioid users continues to be on the rise. To implement the project and cause change in the current practice, the DNP student trained the staff members of the facility about the significance of the project and encouraged them to accept it.

**Facilitators and barriers.** The resources required in the project included funds, rooms for conducting counseling and training, and a website. One of the facilitators of the project was the acceptance of the project by the administration and willingness to fund and support it. Also, the willingness of the staff members to accept change and support implementation of the project was a facilitating factor. Clients who were expected to be non-compliant were identified in advance and provided with personalized services such as reminders and free transportation to the facility.

Training the facility healthcare workers was a facilitator of data collection. The DNP student was not required to be available at every stage of data collection. Providers working with the participants were able to fill the Prochaska's Intervention Tracking tool with ease. The QI team's experience in working with adolescents was also helpful in data collection where filling

of questionnaires was involved. The data collection phase went smoothly without any interruptions or barriers.

Unlike other behavioral change counseling programs where client retention is a problem, in this project, the QI team witnessed a hundred percent attendance rate because of the following effective measures that were adopted by the QI team with the goal of increasing therapy attendance:

- The most effective strategies were offering the client participants their choice of appointment date and time
- Reminding the client participants of upcoming appointments via phone calls 1 hour and 30 minutes prior to their appointments was also one of the most effective method for reducing Treatment refusal (TR) and premature termination (PT)
- Transportation for pick up and drop off was offered to client participants who had difficulty accessing transportation to and from the counseling center. Four out of the six client participants benefited from this offer
- The provision of lunch to client participants who came for appointment during lunch time also went a long way to increase client retention and decreased TR. Three of the client participants benefited from this offer. The DNP student footed the bill for the daily lunch.

### **Implementation and Data Collection Procedures**

The implementation and data collection for the project lasted six weeks. The implementation mainly focused on three phases which were *pre-intervention*; *intervention*; and *post-intervention*.

In the *Pre-intervention phase*, the University of Massachusetts, Amherst (UMass) Internal Review Board (IRB) approval was obtained prior to initiating the DNP project. A six-



member QI team consisting of four PMHNPs and two psychiatrists was formed and led by the DNP student. The DNP student led, monitored, and managed training sessions for the six members. The team members who were employees of the center identified the required resources and established processes required to achieve the objectives of the project. For instance, the team was responsible for preparation regarding informal discussions with participants, pre- and post-surveys questionnaires contained in Appendix A and B respectively, and Prochaska's Pilot Project Intervention Daily Tracking tool shown in table 2. The recruitment of participants; administration of pre and post intervention survey questionnaires to participants; and the brief multi-contact counseling sessions with participants was done by the team.

As part of the Pre-intervention phase, the team identified adolescent opioid users who meet criteria for inclusion as participants. A participant had to be diagnosed with opioid use disorder and the level of risk associated with their opioid abuse behavior. The DNP student played no role in the recruitment of participants and did not in any way have any contact with participants. In addition, to ensure standardization across board, the DNP student held a one-day orientation session with the team to familiarize themselves with the Prochaska's Pilot Project Intervention Daily Tracking tool and to understand the need for the counseling sessions to be brief, lasting 15 -20 minutes Daily. The team members all acquired knowledge in counseling techniques including MI techniques as part of their professional training to become practitioners and therefore did not need an in-depth orientation from DNP student on how to integrate MI techniques in their counseling sessions with participants.

During the *Intervention phase*, the QI team focused on the implementation and monitoring of pre-intervention survey questionnaires and brief multi-contact counseling sessions integrating MI technique to effect change in a participant's problem behavior. After IRB

approval, the QI team adopted a sample matched set of 6 providers with 6 client participants approach. With this approach, each of the six providers chose one client/participant that matched the inclusion criteria within one week to administer pre intervention survey questionnaire and determine which stage of change they were at in Prochaska's behavioral change model. Each of the team members then held a brief counseling session with the chosen participant lasting 15 -20 minutes daily from Monday to Friday over 6 weeks and tracked daily activities using the Prochaska's Pilot Project Intervention Daily Tracking tool. The QI team leader, the DNP student checked in and communicated with providers twice a week regarding the process of counseling sessions and to field questions about the use of Prochaska's Pilot Project Intervention Daily Tracking tool. The providers only shared with the DNP students de-identified data since the DNP student was not directly involved in providing counseling to participants.

In the *Post-intervention phase*, post –intervention survey questionnaires were administered by each of the providers for their chosen participants 6 weeks after the intervention. The DNP student met with the QI team for a focus group discussion where the providers presented case briefs with de-identified data regarding a participants' progress through the pilot and outcomes. The DNP student took notes, recorded anecdotes and field questions, asked for summary comments and their interpretations of impact, and asked whether the project outcome was a sustainable possibility or not at the time - if yes, were they willing to make it the baseline in subsequent strategies for addressing opioid use/dependence among adolescents in the facility – and if not sustainable, what do they think is needed. After the focus group session with the providers, the DNP student collected all de-identified data and the completed Prochaska's Pilot Project Intervention Daily Tracking tool sheet for analysis with the six-member team.

## Measurement Instruments

The Prochaska Pilot Project Intervention Daily Tracking Tool shown in Table 2 below is the main measurement instrument that was used by the provider QI team for Daily assessments in the implementation phase of this QI project. The tool that was developed by the DNP student provided information about the type of opioid a participant has ever used or was using, documentation of the date and daily multi-contact counseling sessions, and where an individual is in the change process based on Prochaska's model. These qualities of the tool made it easy to track the progression of each participant throughout the intervention program.

The other instruments used in the project were the pre and post- intervention survey questionnaires, in Appendix A and B respectively, to assess program participants self-report of where they were at in the change process.

Table 2:

*Prochaska's Pilot Project Intervention Daily Tracking Tool*

Patient Code	Number of visits	Date of visit	Type of Opioid, mode of use & when	Session time in minutes	Stage of change at start of session	Coping mechanisms provided in session	Stage of change at end of session	# attempts to change	Has pt quit substance use?
0A									
0B									
0C									
0D									
0E									
0F									

## Data Collection procedure and Analysis

Pre-intervention survey was issued to sampled adolescents for the project to self-report on their substance abuse, seeking help, and expectations from the program. A post-intervention survey assessed the participants' self-reported gains from the program. Prochaska's Pilot Project

Intervention Daily Tracking tool was used to track the progression of the participants throughout the intervention program.

The data was examined using comparative and illustrative approaches by scoring the pre- and post- tests to evaluate participants' behaviors based on Prochaska's six stages of behavioral change using descriptive statistics of mean and standard deviation. In addition, data from the Prochaska's Pilot Project Intervention Daily Tracking tool was statistically analyzed by plotting a line graph.

## **Results**

This section provides a detailed presentation of the outcomes of the project. The Project results are presented under the headings Pre-Intervention Self Report; Post-Intervention Self Report; Intervention Tracking; and Case Briefs on Progress and Sustainability.

**Pre-Intervention Self Report.** Participants responded on their drug use problem in a 5-point Likert scale, with 1 representing strongly disagrees and 5 strongly agree. Table 3 below indicates the findings.

Table 3:

*Participant's Perception of Their Opioid Use Problem*

Question	Mean	Standard Deviation
I am a current user of opioids.	4.17	0.41
My use of opioids is out of control and is a problem.	3.33	0.82
I am willing to stop my opioid use behavior.	3.67	0.82
I feel confident that change will make a difference.	4.17	0.75
I have attempted at least once to change my opioid use behavior but was unsuccessful.	3.17	0.98
I have tried behavioral change counseling therapy in the past.	2.67	0.82
I am willing to learn coping mechanisms	3.83	0.41
I find it less difficult to go without using opioids when I am in counseling.	3.17	0.41
I find it less difficult to go without using opioids when I am in counseling.	2.83	0.41
Intense Daily brief counseling sessions could work well for me.	1.67	0.52

Participants agreed they were using opioids ( $M = 4.17$ ,  $SD = 0.41$ ), did not think their addiction was a problem ( $M = 3.33$ ,  $SD = 0.82$ ), and agreed that they were willing to stop substance abuse ( $M = 3.67$ ,  $SD = 0.82$ ). The participants agreed that they were confident that change would make a difference ( $M = 4.17$ ,  $SD = 0.75$ ). Also, they did not think it was applicable for them to have unsuccessfully tried to change their opioid abuse behavior ( $M = 3.17$ ,  $SD = 0.98$ ) or behavioral change therapy in the past ( $M = 2.67$ ,  $SD = 0.82$ ). Participants agreed that they were willing to learn coping mechanisms to help them change their opioid use behavior ( $M = 3.83$ ,  $SD = 0.41$ ). The participants did not think it was applicable for them to find it less difficult to go without using opioids when in counseling ( $M = 3.17$ ,  $SD = 0.41$ ). They did not think it possible to change their opioid use behavior when receiving counseling ( $M = 2.83$ ,  $SD = 0.41$ ), and did not agree that daily brief counseling sessions could work well for them to change their behavior than having weekly longer counseling sessions ( $M = 1.67$ ,  $SD = 0.52$ ).

**Post-Intervention Self Report.** Participants reported on their perceptions of the intervention. Responses were in a 5-point Likert scale, with 1 representing strongly disagrees and 5 strongly agree. Table 4 below shows the post test scores on the perceptions of the participants on the impact of the intervention.

Table 4:

*Intervention outcomes*

Question	Mean	Standard Deviation
I learned something from the counseling sessions	4.33	0.52
This project helped me make progress towards changing my opioid use behavior.	4.17	0.41
This project helped me change my opioid use behavior	4.17	0.41
I found the project to be very helpful	3.83	0.42
I feel more confident about my ability to stay away from opioid	4.17	0.75
I enjoyed all the sessions for behavioral change counseling	3.83	0.41
I will use the coping mechanisms I learned in the program	4	0.63
The Daily counseling kept me busy and I find it less difficult to go without opioids.	3.83	0.41
All my questions were answered in full	4	0.52
The Daily counseling kept me busy and I find it less difficult to go without opioids.	4.17	0.75

Participants agreed that they felt they had learned something from the counseling sessions ( $M = 4.33$ ,  $SD = 0.52$ ). Some reported that project helped them make progress towards changing their opioid use behavior ( $M = 4.17$ ,  $SD = 0.41$ ) and that they felt the project helped them change their opioid use behavior ( $M = 4.17$ ,  $SD = 0.41$ ). Participants also agreed that they found the project to be very helpful ( $M = 3.83$ ,  $SD = 0.42$ ), after participating in the project, they felt more confident about their ability avoid opioids ( $M = 4.17$ ,  $SD = 0.75$ ). They enjoyed all the sessions for behavioral change counseling ( $M = 3.83$ ,  $SD = 0.41$ ), and will use the coping mechanisms they learned in the program to quit their opioid use behavior ( $M = 4$ ,  $SD = 0.63$ ). The participants also agreed that the Daily counseling kept them busy and found it less painful to

abstain from using opioids ( $M = 3.83$ ,  $SD = 0.75$ ). All their inquiries were answered in full ( $M = 4$ ,  $SD = 0.52$ ), and they felt that the intense daily brief counseling sessions worked well for them to change their behavior ( $M = 4.17$ ,  $SD = 0.75$ ).

### Intervention Tracking.

Figure 2 below is a pictorial presentation of how client participants progressed through the intervention from week 1 through week 6.

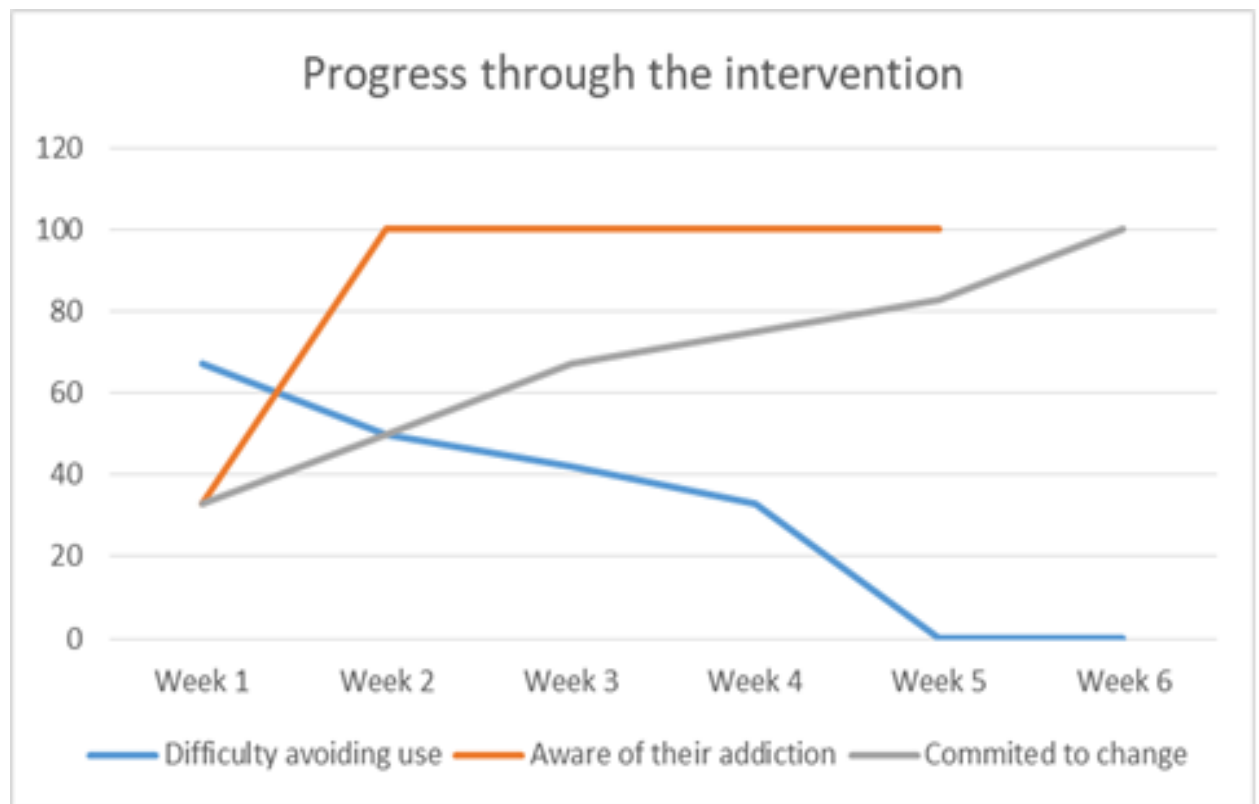


Figure 2: A line graph of participants' progress through the intervention.

In their first sessions, most of the participants (67%) did not believe that their opioid use was a problem. However, some, 33%, believed that they had a health issue. Participants identified codeine and promethazine (83%), OxyContin (33%), and fentanyl (17%) as the opioids they had used. Only 33% of the participants had made any previous attempts to change their

opioid use behavior by themselves. None of the participants had sought professional help. All sessions lasted between 15 to 20 minutes.

At week two sessions, all participants were aware of their opioid use problem. By the end of the week, about 50% of the participants reported difficulties in avoiding opioids. None of the participants had, however, reported purchasing or accessing new opioids for use. In week three, participants had committed to changing their behavior and had elaborate plans for their change process. About 67% of the participants reported to have chosen new hobbies and to be in the process of making new friends.

By week 4, 33% of the participants reported that they were finding it hard to continue without using opioids and were considering of going back to their old habits. Participants reported that their earlier plans were not working as planned and were frustrated. In week 5, about 83% of the participants had made elaborate plans on their change process and committed to following them. Major barriers included access to opioids especially in school attending participants.

By week 6, of brief multi-contact counseling integrated with MI, all the participants were re-committed to change their opioid use behavior. Participants were aware of impending challenges and were ready to tackle them. All the participants had quit opioid abuse for the last two weeks as evidenced by the weekly urine toxicology reports.

**Case Briefs on Progress and Sustainability.** All the 6 providers in the QI team agreed in their presented case briefs that the brief multi-contact counseling integrating MI technique had unexpected positive outcome. Providers described the impact of the intervention as *successful*, *surprisingly successful*, and *effortlessly successful*. To all the 6 providers, the intervention was surprisingly successful because at the beginning, they thought the intervention was going to be



both labor and time intensive, but it ended up saving them time and prevented mental burn out which is very common in traditional longer counseling sessions. According to 4 providers, participants reported that they were motivated to continue participating in the project till the end because of the brief nature of the counseling sessions. To those participants, they came each day for counseling knowing that they will be out within 15 -20 minutes without them getting bored with lots of information they could not retain. Providers agreed that the intervention was sustainable in the facility at the time but did also agree that it will be a good idea to reconduct same pilot project using a larger sample size to see the outcome on a larger sample before the facility should decide on making the decision to sustain the intervention. Providers identified the cost effectiveness of the program, and the success rate as the reason for sustainability.

### **Interpretation/Discussion**

Opioid use is highly prevalent among adolescents and continues to increase with age (Groenewald et al., 2016). Most of substance abusers are not aware that they have a problem (Friman et al., 2017). Various interventions for treating substance abuse are not effective for adolescents, especially those presented with substance abuse (Rakauskiene & Dumciene, 2013). The brief multi-contact counseling that integrates MI technique has been shown to be the most effective in treating adolescents with behavioral problems (Benzo et al., 2013; Catley et al., 2016). The purpose of the DNP project was to use brief multi-contact counseling integrated with motivational interviewing to encourage behavioral change among adolescents abusing opioids.

From the findings of the quality improvement project, participants had easy access to codeine and promethazine, oxycodone, and fentanyl as the main opioids they had access to and used. These findings are supported by those of Groenewald et al. (2016) that codeine and oxycodone are among the most commonly prescribed opioids to adolescents. Adolescents are

therefore able to access opioids with ease thus increasing their likelihood of abuse, addiction, and related effects such as poor health and mortality. Groenewald et al. (2016) also found a significant increase in opioid prescription to adults in the US from 1996 to 2012. Growing rates of opioid prescription in the community increase their availability to adolescents who may be inclined to use them.

In the pre-intervention survey, participants agreed that they used opioids but did not view their opioid use behavior as a problem but were however willing to learn coping mechanism to help them stop opioid use. These outcomes are supported by those of Groenewald et al. (2016) who found that most adolescents who are addicted to opioids did not realize they had an addiction problem. Participants also felt that an intensive daily counseling would not work for them, results which are consistent with previous findings that the concentration span of adolescents is low and that effective therapy sessions should take less time (Rakauskiene & Dumciene, 2013).

The project findings after the intervention indicate the intervention was successful and that the participants felt they had learned from the sessions. Participants felt that the coping mechanisms learned had aided in their behavioral change and they were confident that the changes would be sustained. These outcomes are supported by findings of several studies that brief multi-contact counseling sessions integrated with motivational interviewing are successful in behavioral change (Hair et al., 2013; Rakauskiene & Dumciene, 2013; Virtanen et al., 2015). In a randomized trial to evaluate the efficacy of brief counseling among tobacco smokers, Virtanen et al. (2015) also established that there was a significant reduction in tobacco use among smokers who went through brief counseling sessions.

The results of the Quality Improvement Project are also supported by similar studies on the efficacy of motivational interviewing interventions. In a clinical review of previous studies testing the efficacy of motivational interviewing in the behavioral change, Christie and Channon (2014) found motivational interviewing to be effective. Similarly, Benzo et al. (2013) also found that self-management interventions including motivational interviewing as the most effective way of guiding Chronic Obstructive Pulmonary Disease (COPD) patients in their behavior change process, as it increased their engagement and commitment to self-management. Contrary to the findings of the project, Catley et al. (2016) found motivational interviewing not as effective as health education for inducing smoking cessation among smokers with low motivation to stop. Although Motivational interviewing was more effective than brief advice offered to the participants, health education was the most effective intervention, thus questioning recommendation for motivational interviewing (Catley et al., 2016).

The project findings indicate that even though the adolescents participating in the study had been identified through records with opioid use problem, and agreed that they used opioids, they did not believe that their opioid use was a problem. The outcomes of the project are like those of Friman et al. (2017) who found that behavioral change in adolescents who abused opioids occurred in four stages, the pre-contemplation, contemplation, preparation, and action. According to Friman et al. (2017) people who do not accept that they have a problem are in the contemplation stage. Adolescents participating in the quality improvement project were therefore in the pre-contemplation stage at the beginning of the project. Participants did not view their opioid use as a problem and hence did not see the need for change. Friman et al. (2017) assert that people in the pre-contemplation stage might have tried to give up their addiction in vain. In

the quality improvement project, few participants had tried to change their opioid use behavior before but were not successful.

In addition, the project outcomes also indicate that by the end of the first week of the intervention implementation, all participants had accepted their drug use problem and were willing to change. According to Friman et al. (2017), the stage after pre-contemplation where people accept their problem and are willing to change is the contemplation stage. After five days of incorporating brief multi-contact counseling with the motivational interview, participants had progressed to the contemplation stage. These findings support those of Howarth et al. (2013) who found that after intensive brief counseling sessions to improve fruit and vegetable consumption, all participants in the treatment group were able to progress successfully from the pre-contemplation to contemplation stage as compared to those who did not receive brief counseling intervention.

Participants agreed to change their behavior by week three. Friman et al. (2017) noted that at the contemplative stage, people are aware of their problem and are willing to make changes but have not committed to making the change. For instance, in the current quality improvement project, participants identified their opioid use as a problem in the second week of the intervention, vowed to make changes, but reported that they find difficulties living without opioids. The preparation stage is where people have committed to making a change and start making plans (Friman et al., 2017).

By week 4 of the intervention, a few participants reported that they had difficulties in changing their opioid use behavior despite their earlier commitment. In the preparation stage, people take little steps towards changes that might work or fail, and in most cases, do not result

in the behavior change they require (Friman et al., 2017). Participants were in the preparation stage to change their opioid use behavior in week 4.

Adolescents participating in the QI project had made elaborate plans on their change process by week 5 and were more confident of adhering to them by week 6. Friman et al. (2017) describe the action stage as the stage where people have changed their dysfunctional behavior for 24 hours or more, up to 180 days. In the last two weeks of the intervention, participants were in the action stage where they had denounced their opioid abuse behavior, made plans and committed to stopping their use. Weekly toxicology reports for the period also provided evidence that all the participants had not used opioids from week 5 through week 6.

The project findings also indicate that basing the intervention on the TTM model encouraged the behavioral change of the participants. Like the results of the quality improvement project, Pirzadeh et al. (2015) indicates that educational interventions based on the trans-theoretical model promoted a change of behavior in women to embrace physical activity. In the study by Pirzadeh et al., participants progressed from the pre-contemplation stage to the preparation stage within three months, contrary to the findings of the quality improvement project where the progression occurred in six weeks. Friman et al. (2017), however, assert that different behavioral changes require different time scales for progression to occur.

The findings of the DNP project are also supported by those of Howarth et al. (2014). In a study to determine whether the trans-theoretical model of behavior change provided a useful basis for interventions to promote fruit and vegetable consumption, Howarth et al., found that the individuals who participated in the study were able to successfully progress from pre-contemplation stage to show a more significant use of behavioral processes and consciousness

raising. The success of the intervention in the QI project could, therefore, be attributed to being based on the trans-theoretical model of behavioral change.

### **Implications for Practice and Future Recommendation**

The protocols for the QI project was mainly created by the DNP student from the best of multi-faceted evidence. It was a team approach with the DNP student as the team leader, who monitored and managed the project protocol. This type of evidence-based protocol was a combination of efforts to tackle the terrible problem of addiction among adolescents.

The findings of the project may be useful to policymakers, clinicians, and stakeholders as they look for ways to tackle the opioid epidemic that has engulfed this nation. The providers when meeting with the DNP student to discuss the progress of the participants and the success of the intervention, agreed that the brief multi contact counselling and motivational interviewing program was sustainable. The findings of the project indicating the success of the intervention will therefore promote adoption of such programs in practice setting thus potentially beginning to tackle the problem of increasing rates of opioid addiction among adolescents. The project findings should also prompt a change in the opioid prescription practices among providers at the ICC. This is because the findings indicate that the most prescribed opioids are the most abused, due to ease of access (Groenewald et al., 2016). The findings should also prompt a need for change in the identification process of adolescents addicted to prescription opioids, as the majority does not acknowledge their addiction. In addition, it is with the hope that the results of this project will motivate clinicians/providers and their staff members to adopt the tactics adopted by this project to increase treatment retention for patients/clients needing behavioral change counseling.

The DNP project established the integration of brief multi-contact counseling and motivational interviewing based on the trans-theoretical model of behavioral change as effective in promoting behavioral change in adolescent opioid users. Further suggestions and recommendations include the utilization of a larger sample size to enable larger comparisons sample matched set of 6 providers with 6 client participants. The current project utilized a small sample size of 6 participants. With the current knowledge that more adolescents are getting addicted to opioids (Friman et al., 2017), more projects and research studies are required to identify an effective intervention to stop the vice. Evaluating the efficacy of the intervention with a higher sample size will increase the validity and reliability of the findings by ensuring a greater representation of adolescents in the country.

Future projects should also include sampling participants outside of behavioral health centers. The project findings indicated that most adolescents with opioid abuse problem do not consider themselves as victims. Sampling adolescents from an addiction treatment center, therefore, leave out adolescents who use opioids and do not consider it a problem and have never attended such centers. Future projects and research studies are also recommended to put in place measures to test for the long-term efficacy of the intervention.

### **Cost-Benefit Analysis/Budget**

The total costs for this QI project was \$2,000.00 USD. It included personnel cost; printing of material; weekly urine toxicology; and patient, family and staff education. The DNP student did not directly bear the cost because the management of the hospital agreed to pay for most of the expenses. In addition, no operational cost was incurred by DNP student because office rent, office utility, and the computer-based documentation system for this project already

existed and was covered by the facility. The DNP student only incurred \$1,035 of the total cost as itemized in table 5.

Table 5:

*Cost Itemization*

Item	Estimated Cost (\$)
Multi colored paper (1 ream)	10.00
Regular copy paper for handouts, surveys, and record keeping (3 reams)	20.00
Pack of ballpoint pens and pencils (1 each)	20.00
Toner cartridge for printing (1)	35.00
DNP student training in behavioral counseling	300.00
Provision of lunch and staff training	250.00
Transportation for patients	300.00
Miscellaneous	100.00
Weekly urine toxicology	0.000 (absorbed by facility)
Weekly alcohol breathalyzer	0.000 (absorbed by facility)
Office space and bills	0.000 (absorbed by facility)
Personnel	0.000 (absorbed by facility)
Total Estimated Costs	1,035

**Ethical Considerations/Protection of Human Subjects**

The official IRB Determination Form was submitted as soon as the proposal was approved and the University of Massachusetts, Amherst (UMass) Internal Review Board (IRB) approval was obtained before initiating the DNP project. The DNP student was doing his clinical practicum at the project site but was not in any way directly involved in recruiting, screening, and doing the brief multi-contact behavioral counseling with the project subjects. The DNP student did not have any access to locked files in the providers' offices containing patient identifiers. Also, the DNP student did not have access to the electronic medical records of the center, and therefore could not identify any patient information electronically. The DNP student was not linked to individual participant's data, rather all data was forwarded to the DNP student de-identified and in a Microsoft Excel spreadsheet. All the data that was collected for the



evaluation of the outcome of the project were merged as aggregated information by the six-member QI team to a Microsoft Excel spreadsheet, and did not contain any potential patient identifiers. To ensure that the confidentiality of participants was not breached in any way, each participant was coded using individual identification numbers (Boutin-Foster et al., 2013) that were kept in confidential files in the providers' offices. The recruitment of patient participants and counseling was done by the QI team members, employees of the center, who followed the standards of care for practice to ensure that all participants were protected as stated in the Health Insurance Portability and Accountability Act of 1996 (HIPAA). The HIPAA ensures that patients' rights, privacy, confidentiality, and health information are protected (McGraw, 2013).

### **Conclusions**

The opioid epidemic continues to devour American youth each day and has far-reaching psychological, social, medical, and economic consequences for families and for us all as a nation. Adolescents in the US and around the globe are increasingly becoming addicted to opioids. The prescription rates of opioids in the US continue to increase as well enabling their ease of access among the adolescents. Adolescents too have ease of access to opioids through relatives, prescription, and through illegal acquiring. All these and other factors reflect the urgent need for innovative solutions to the crisis. As we continue to explore interventions to curb the problem, we must ensure that our solutions are not based on our personal and political ideologies rather than on scientific evidence and reason such as the protocol created by the DNP student for this pilot QI project. Time intensive counseling sessions have proven to be ineffective for adolescents due to their low concentration rates. From the project findings, Brief multi-contact counseling intervention integrating MI techniques guided by Prochaska's six stages of Behavioral Change Model have substantial potential to encourage behavioral change among

adolescents thereby reducing the risks associated with opioid misuse among adolescent opioid users.

This pilot quality improvement project aimed to encourage behavioral change in adolescents identified as opioid users, by using a brief multi-contact counseling intervention integrating motivational interview (MI) techniques guided by Prochaska's six stages of Behavioral Change Model. The project was conducted at the Island Counseling Center, an outpatient psychiatric facility, and involved six adolescents as the client participants. The brief multi-contact counseling and motivational interviewing were found to be effective. Participants progressed through the first four stages of Prochaska's six stages of Behavioral Change Model. By the end of week 6 of brief multi-contact counseling integrated with MI, all the participants had quit opioid use for the last two weeks as evidenced by the weekly urine toxicology reports that were unremarkable. Future projects or scientific investigations are recommended to utilize a larger sample size and have evaluation plans to test for long-term efficacy of the intervention

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## Appendices

### Appendix A: Pre-Intervention Survey

Please complete the following survey with specific regard to the above enquiry, by placing a **circle** on the appropriate response that best applies to you. **Select only one response per question.** The responses are on a 5-point Likert scale with 1= strongly disagree; 2= disagree; 3= neither or N/A; 4= agree; and 5= strongly agree. Please do not write your name or date of birth on this survey. All responses are kept confidential.

**Question 1:** I am a current user of opioids

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 2:** I think my use of opioids is out of control and is a problem

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 3:** I am willing to stop my opioid use behavior

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 4:** I feel confident that change will make a difference

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 5:** I have attempted at least once to change my opioid use behavior but was unsuccessful

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 6:** I have tried behavioral change counseling therapy in the past

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 7:** I am willing to learn coping mechanisms that will help me change my opioid use behavior

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 8:** I find it less difficult to go without using opioids when I am in counseling

5	4	3	2	1
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Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree
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**Question 9:** When I receive counselling I find it possible to change my opioids use behaviors

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 10:** Intense Daily brief counseling sessions could work well for me to change my behavior than having weekly longer counseling sessions

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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## Appendix B: Post-Intervention Survey

Please complete the following survey with specific regard to the above enquiry, by placing a **circle** on the appropriate response that best applies to you. **Select only one response per question.** The responses are on a 5-point Likert scale with 1= strongly disagree; 2= disagree; 3= neither or N/A; 4= agree; and 5= strongly agree. Please do not write your name or date of birth on this survey. All responses are kept confidential.

**Question 1:** I feel that I learned something from the counseling sessions

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 2:** I feel that this project helped me make progress towards changing my opioid use behavior

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 3:** I feel that this project helped me change my opioid use behavior

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 4:** In general, I found the project to be very helpful

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 5:** After participating in this project, I feel more confident about my ability to stay away from opioid

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 6:** I enjoyed all the sessions for behavioral change counseling

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 7:** I will use the coping mechanisms I learned in the program to quit my opioid use behavior

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 8:** The Daily counseling kept me busy and I find it less difficult to go without opioids.

5	4	3	2	1
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Strongly Agree	Agree	Neither Or N/A	Disagree	Strongly Disagree
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**Question 9:** All my questions were answered in full

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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**Question 10:** I feel that the intense Daily brief counseling sessions worked well for me to change my behavior

5 Strongly Agree	4 Agree	3 Neither Or N/A	2 Disagree	1 Strongly Disagree
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